



## Bear-Human Information Management System

### Importance

The NPS Alaska Region Bear-Human Information Management System (BHIMS) was developed as a tool for standardizing the collection and analyses of bear-human interaction data at park-specific and regional scales. This system enables a databased assessment of bear-human interactions in Alaska's national parks and provides a scientific framework for preventing negative bear-human interactions.

### Background

Populations of brown (*Ursus arctos*) and American black bears (*U. americanus*) occur singly or sympatrically in every National Park Service unit in Alaska. The management of bears and protection of their habitat is specifically mandated in the enabling legislation of 10 of Alaska's 16 NPS units. Consequently, one of the NPS Alaska Region's primary management goals for bears is to ensure their conservation and safe coexistence with humans. This involves identifying and minimizing potentially dangerous bear-human interactions in NPS jurisdictions. However, one of the obstacles to understanding and managing bear-human interactions in Alaska's National Parklands is poor documentation. Although all park units collect data on bear-human interactions, there is no unified data collection or analysis within the Alaska Region. This lack of a comprehensive bear-management system results in incomplete and often irrelevant data, which can result in misdirected public education efforts and ill-informed bear management policies.



### Technical Details

The user interface and underlying database structure were developed in Microsoft Access. Relational databases are more sophisticated than file-based data storage systems, such as spreadsheets. They provide better data integrity by imposing rules to validate data and by eliminating the need for duplicate data entry. This ensures better consistency and accuracy among the data. The user interface built for this database conceals its underlying complexity. As a result, the user is presented with easily understood data entry and query windows.

| RECORD ID                 | LOCATION    | BEAR       | ENCOUNTER        | NARRATIVE                 | ANALYSIS                 | CASE INCIDENT |
|---------------------------|-------------|------------|------------------|---------------------------|--------------------------|---------------|
| Record ID: ANIA_1991_0001 |             |            | Case/Incident #: | N/A                       | Park SPID #:             | BC-99         |
| Record ID                 | Record Type | Date       | Time             | Place Name                | Bear(s)                  | Group         |
| ANIA_1991_0001            | Incident    | 07/12/1991 | Unknown          |                           | Single bear, sex unknown | Unknown       |
| ANIA_1991_0002            | Incident    | 08/20/1991 | Unknown          |                           | Unknown                  | Unknown       |
| ANIA_1991_0003            | Incident    | 07/11/1991 | 18:00            |                           | Single male              | NPS em        |
| ANIA_1997_0007            | Incident    | 06/26/1997 | Unknown          |                           | Single bear, sex unknown | Ranger        |
| CTHA_2002_0001            | Encounter   | 06/06/2002 | 08:00            | Underman Camp to Bare Lo  | Single bear, sex unknown | Park vis      |
| CTHA_2002_0002            | Encounter   | 07/24/2002 | 09:00            | VIPIR Tracks to Log Cabin | Single bear, sex unknown | Park vis      |
| CTHA_2002_0003            | Observation | 05/23/2002 | 21:00            | Bennett Campground        | Two bears, sex unknown   | Infolder      |
| CTHA_2002_0004            | Observation | 05/24/2002 | 08:30            | VIPIR Bennett Station     | Single bear, sex unknown | Infolder      |
| CTHA_2002_0005            | Observation | 05/25/2002 | 20:30            | VIPIR Bennett Station     | Single bear, sex unknown | Infolder      |
| CTHA_2002_0006            | Observation | 05/27/2002 | 17:00            | VIPIR Tracks to Log Cabin | Female with offspring    | Other         |
| CTHA_2002_0007            | Observation | 05/30/2002 | 17:30            | VIPIR Bennett Station     | Single bear, sex unknown | Infolder      |
| CTHA_2002_0008            | Observation | 06/01/2002 | 09:00            | Bennett Campground        | Single bear, sex unknown | Infolder      |
| CTHA_2002_0009            | Encounter   | 06/11/2002 | 08:30            | Cutthroat                 | Single bear, sex unknown | Park vis      |
| CTHA_2002_0010            | Encounter   | 06/12/2002 | 18:30            | Bennett Campground        | Single bear, sex unknown | Park vis      |
| CTHA_2002_0011            | Observation | 06/12/2002 | 14:30            | VIPIR Bennett Station     | Female with offspring    | Other         |
| CTHA_2002_0012            | Observation | 06/28/2002 | 09:30            | VIPIR Bennett Station     | Single bear, sex unknown | Unknown       |
| CTHA_2002_0013            | Observation | 07/01/2002 | 11:30            | Bennett Campground        | Single bear, sex unknown | Park vis      |
| CTHA_2002_0014            | Encounter   | 07/18/2002 | 07:00            | Bare Loon Lake Campground | Single bear, sex unknown | Park vis      |
| CTHA_2002_0015            | Observation | 07/19/2002 | 22:00            | Happy Camp                | Single bear, sex unknown | Park vis      |

When entering a new record, the user is required to select the record type. Three types of bear data are being recorded in the database: bear sightings, bear-human interactions, and management data. A *sighting* is when a person sees a bear, but the bear is apparently unaware of the person. This is categorized as an observation in the database application. An *interaction* is when a person and bear are mutually aware of one another and is categorized as an encounter, incident, or legal harvest. A natural history/management record includes observations and field notes pertaining to general bear activity or management in a park. The user is required to enter certain fields, depending on the record type. The park and event date are always mandatory and are used to generate a unique record id, such as *DENA\_2010\_0001*. Users build queries by entering criteria, or like values, for one or more fields related to a bear event. The query results display all records that meet the given criteria.

The spatial data, used to produce maps, are stored in an ESRI Geodatabase as a point feature class. Point geometries have no length or area but are used to pinpoint bear events to geographical locations.